ERM-North Central, Inc.

ERM

540 Lake Cook Road
Suite 300
Deerfield, IL 60015
708-940-7200
708-940-9280 Fax

A Member of the Environmental
Resources Management Group

October 23, 1992

Mr. Nan Gowda, P.E.
Regional Project Manager
USEPA, Region V, HSRL-6J
77 W. Jackson
Chicago, IL 60604

RE: Lenz Oil Remedial Investigation/Feasibility Study
Comments on USEPA Baseline Risk Assessment

Dear Mr. Gowda:

At the direction of the Lenz Oil Site Participating Respondents, enclosed please find two copies of comments on the U.S. Environmental Protection Agency's (USEPA's) Baseline Risk Assessment (RA) for the Lenz Oil Site. We request that these comments be included in the Administrative Record for the Lenz Oil Site.

In general the RA has been prepared in accordance with the USEPA Region V guidance; however, the document is missing information and contains a number of unsupported assumptions and calculation errors. In accordance with USEPA Region V guidance, the Lenz Oil RA includes the use of the reasonable maximum (worst case) exposure factors and the less conservative (central tendency) exposure factors for evaluating the current and potential future use scenarios for the site. However, some of the assumptions used to assess the risk to the Des Plaines River and to perform the ecological assessment are questionable. Although correcting these may not substantially change the final risk values the corrections are necessary so that accurate and meaningful risk calculations and comparisons can be conducted during a Feasibility Study and Remedial Design/Remedial Action phases of the project. Furthermore, the corrected document will then more accurately present the limitations of the RA.

ERM

The Participating Respondents would appreciate the opportunity to meet with you and your contractor to discuss the comments further, and to answer any questions you may have regarding these comments.

Very truly yours,

ERM-NORTH CENTRAL, INC.

David P. Edwards
Project Manager

bk

cc: Mark Furse, Katten, Muchin & Zavis (1 copy)
Jennifer Nijman, Coffield, Ungaretti & Harris (1 copy)
Diane Richardson, Commonwealth Edison (1 copy)

COMMENTS ON THE BASELINE RISK ASSESSMENT FOR THE LENZ OIL SERVICE, INC. SITE LEMONT, ILLINOIS

[NOTE: The references are listed as they appear in the Baseline Risk Assessment.]

1. **Page ES-1, 4th Paragraph, 4th Line** - Delete "actual and." The actual harm to public health and welfare can only be determined by epidemiological studies.

2. **Page ES-3, 2nd Paragraph, Bullet List** - This list does not provide a summary of toxicological properties of compounds of concern.

3. **Page ES-3, 3rd Paragraph, 3rd Line** - The meaning of a range of carcinogenic risks for a future residential receptor using on-site ground water is not clear. It should specify that the risk corresponds to the use of shallow or deep ground water.

4. **Page ES-3, 3rd Paragraph, 4th Line** - Explain why there is only a single number for the hazard index for this pathway.

5. **Page ES-3, 4th Paragraph, 2nd Line** - Explain the meaning of the range of risks for a single pathway.

6. **Page ES-4, 3rd Paragraph, 2nd Line** - Explain the meaning of the range of carcinogenic risks for a single pathway.

7. **Page ES-4, 4th Paragraph, 4th Line** - Change "0 to 2.5, to 0 to 5 feet deep" to "0 to 2.5 and 0 to 5 feet deep."

8. **Page 4, 2nd and 5th Paragraphs, First Sentence** - These two paragraphs have the same first sentence. The sentence in the second paragraph should be deleted.

9. **Page 4, 5th Paragraph, Second Sentence** - This sentence is incomplete.

10. **Page 10, 4th Paragraph** - This paragraph should be deleted. It addresses migration pathways rather than historical data.

11. **Figure 2-1** - This figure does not show the location of monitoring well MW-8S. Figure 2-6 of the Remedial Investigation (RI) Report is a current monitoring well location map.

12. **Figure 2-2** - This figure shows the proposed locations for the Phase II soil samples. The actual sample locations, which are presented on Figure 2-3 of the RI Report, should be shown.

13. **Page 14, 1st Paragraph, 1st Sentence** - Why were the residential well data (i.e., Special Analytical Services analyses) not used in the risk assessment?

14. **Page 14, 2nd Paragraph** - This paragraph indicates that 15 monitoring wells were installed at the site during the RI and that the ground water flow direction was poorly defined in Phase I. The paragraph should be modified to include the additional monitoring well installed during Phase II and the ground water flow direction presented in the RI Report.

15. **Page 15, 1st Paragraph, 4th Line** - This sentence should be reworded as follows: ". . liner was intact, if intruding groundwater has contaminated the ash, and/or if precipitation through the ash was contributing to ground water contamination."

16. **Page 15, 3rd Paragraph, 8th Line** - Replace "quantitatively" with "qualitatively."

17. **Page 15, 4th Paragraph, 6th Line** - This sentence should state that the Phase II samples were analyzed for the Inductively Coupled Plasma (ICP) metals only.

18. **Page 18, 2nd Paragraph, 2nd, 3rd, and 4th Sentences** - These sentences do not clearly describe which of the Phase I soil, sediment, and surface water results are acceptable.

19. **Page 18, Last Paragraph, 2nd and 3rd Bullets, and Page 19, 1st Paragraph, 1st Bullet** - The second paragraph on Page 18 indicates that the Phase I data for these media had "serious analytical deficiencies." It appears that these data should not have been used in the risk assessment. Please clarify.

20. **Page 19, 5th Paragraph, 1st and 2nd Sentences** - These sentences do not address how the frequency of detection was used to select chemicals of potential concern. They should be deleted.

21. **Page 20, 2nd Paragraph, 3rd Sentence** - Appendix B does not include the background soil sample comparison tables.

22. **Page 22 & 23, Continued Paragraph, 1st Line** - The equations used to calculate the 95 percent upperbound confidence limit value of the arithmetic mean should be included in the report. They are not in Appendix C.

23. **Page 23, 2nd Paragraph, 4th Sentence** - This sentence implies that the reasonable maximum exposure (RME) concentrations are listed somewhere. Refer to the specific appendix or table.

24. **Table 2-1** - The PCBs, Aroclor-1242 and Aroclor-1260, are listed as chemicals of potential concern for the shallow ground water in Area A; however, it should be noted that the only ground water samples that contained these PCBs were taken from wells that also contained the NAPL. Therefore, the presence of these PCBs in the ground water samples may be from residual NAPL on the sampling device and not PCB contamination in the aqueous phase.

25. **Page 28, 2nd Paragraph, 4th Line** - Replace "or 235°" with "of 235°."

26. **Page 30, Last Line** - A period is missing.

27. **Page 31, Paragraph 2 and Table 3-1** - This paragraph incorrectly implies that all of the wells listed on Table 3-1 are located in the area potentially affected by ground water contamination. The wells listed were identified in Technical Memorandum No. 1 as possible candidates for sampling during Phase II of the RI because: (1) they are located in the southern half

of Section 11, T37N, R11E, or (2) they were previously sampled by the IEPA. After evaluating the extent of the ground water contamination, it appears that only the Corwin Lenz and Williams wells are situated in the area potentially affected by ground water contamination from the site (see the approved Phase II Work Plan - Part A and the RI Report). This paragraph and table should be revised accordingly.

28. **Page 32, Table 3-1, Title** - If this table is used, the title should be modified. These wells are not within the Lenz Oil Site boundaries and not all of the wells are potentially impacted by site contaminants.

29. **Page 33, 3rd Paragraph, 4th Line** - Explain how the significance of modeled concentrations in the Des Plaines River was determined.

30. **Page 33, 4th Paragraph, 8th and 9th Lines** - The RME values are <u>not</u> documented in Appendix C. This appendix has only what appears to be the 95 percent upperbound confidence limits. In fact, the specific column in the appendix is incorrectly named "Confidence Interval."

31. **Page 34, 5th Paragraph, 1st Sentence** - The first sentence should be reworded as follows: "... groundwater beneath approximately 91,000 square feet of the site."

32. **Page 35, 3rd Paragraph, 4th Line** - The RME values are not listed in Appendix C.

33. **Page 36, 3rd Paragraph, 6th and 7th Lines** - Since no modeling of contaminant transport from the ditch was conducted, exposure of recreational users of the Des Plaines River should not have been evaluated. At the minimum, a dilution factor between the ditch and the river should have been considered.

34. **Page 36, 5th Paragraph, Last Sentence** - The RME values are not listed in Appendix C.

35. **Page 43, Definition of the Terms in Equation 3-4** - The definitions of exposure frequency (EF) and exposure duration (ED) should indicate that these values must be expressed in days/year and years, respectively, not as indicated in the document (see EPA, 1989b, Page 6-40, Exhibit 6-14).

36. **Page 45, Equation 3-6; Page 47, Equation 3-8; Page 49, Equation 3-12; Page 50, Equation 3-14; Page 52, Equation 3-16; Page 53, Equation 3-18; and Page 55, Equation 3-20** - The entire equations should be divided by 365 days/year (see EPA, 1989b).

37. **Page 45, Definition of Conversion Factor (CF)** - The value used is not given; based on other parameters' units and after making other corrections indicated herein, this value should be 1×10^{-6} kg/mg.

38. **Page 45, Definition of the Surface Area Available for Contact (SA)** - The value of SA should be expressed in cm^2/event (see EPA, 1989b).

39. **Page 45, Definition of the Absorption Factor (ABS)** - Appendix G does not contain chemical-specific absorption factors.

40. **Pages 46, 47, 48, 50, 51, 53, 54, and 55, Definitions of the Averaging Time (AT)** - The value of AT should be expressed in days (see EPA, 1989b).

41. **Page 47, Definition of CF** - This parameter should be deleted from the equation. Based on the other parameters' units and after making other corrections indicated herein, no conversion factor is necessary.

42. **Page 47, Definition of ED** - The value of ED should be expressed in years, not in days as indicated in the risk assessment (see EPA, 1989b, Page 6-44, Exhibit 6-16).

43. **Page 48, Definition of CF** - The value used is not given; based on the other parameters' units and after making other corrections indicated herein, this value should be 365 days/year.

44. **Page 49, Definition of CF** - The value used is not given; based on the other parameters' units and after making other corrections indicated herein, this value should be 1 L/1000 cm^3.

45. **Page 50, Definition of CF** - The value used is not given; based on the other parameters' units and after making other corrections indicated herein, this value should be (1 hr x mg) / (60×10^3 min x ug).

46. **Page 51, 4th Paragraph** - There is no basis for the assumption that the contaminants detected in the ditch are present at the same concentration in the Des Plaines River. This analysis should be removed.

47. **Page 51, 5th Paragraph** - By using the river as the exposure point, whole-body dermal contact was assumed. The increase in risk due to this assumption, versus a probable assumption of 37 percent of the body exposed during wading, would be in the range of approximately 3 times higher (see Page 52). Although the cancer risks are less than 1×10^{-6}, the public may be concerned that the Des Plaines River is a point of exposure. How was the sediment dermal contact risk, shown on Table 5-6, calculated for the river?

48. **Page 52, Definition of CF** - The value used is not given; based on the other parameters' units and after making other corrections indicated herein, 1 this value should be 1 $L/10^3$ cm^3.

49. **Page 53, Equation 3-18; and Page 54, Equation 3-19** - Based on the other parameters' units and after making other corrections indicated herein, the factor CF should be deleted.

50. **Page 54, 1st full Paragraph under Scenario 9** - The assumption that the drainage ditch and the river are being used for recreational activities does not seem to be based on actual observations. Also, the "exploratory" expeditions into the site (i.e., trespasser activities) are not based on observations of people at the site. The first sentence should be qualified to state that the aforementioned exposures are assumed.

51. **Page 55, Definition of CF** - The value is not given; based on the other parameters' units and after making other corrections indicated herein, it should be 1 $kg/10^6$ mg.

52. **Page 55, Definition of SA** - The value should be given in cm^2/event (see EPA, 1989b).

53. **Page 56, Last Paragraph, 5th Line** - Remove the word "entire"; it implies that the exposed population is large, which is not the case.

54. **Page 56, Last Paragraph, Last Sentence** - Add that residents may also spend only 9 years living near the site (EPA, 1989b, Page 6-40).

55. **Page 57, Table 3-2** - Add that the assumption that the ditch (and river) are used for recreational activities may overestimate the exposure. Also, the "Comparison to background concentrations," which is shown as overestimating and over- or underestimating the risk, should have an "x" only under the last column. The "Use of unfiltered versus filtered results" does not have a column assigned; it should be the last one.

56. **Page 58, 2nd Paragraph, 6th Line** - Remove the entire line; it is a combination of the previous and next lines.

57. **Page 59, Table 3-3, Water Ingestion - Adults Only, Averaging Time, Central Tendency Exposure Factors** - The number should be 70 years instead of the listed 10 years. The calculated value of 1.9×10^{-3} is correct.

58. **Page 64, Last Paragraph, 1st Sentence** - The RME values are not documented in Appendix C.

59. **Page 67, Last Paragraph, 3rd Line** - There are words missing between "sufficient data" and "is."

60. **Page 68, 1st Paragraph, 8th Line** - The reference to the HEAST Tables is different from the reference in Table 4-4. In fact, the HEAST Tables from 1991 appear to have been used (i.e., the reference in Table 4-4 is correct).

61. **Page 69, Table 4-1, Footnote 6** - This footnote contradicts the statement on Page 68 regarding the use of route-to-route extrapolation of risk factors.

62. **Page 70, Table 4-1, Footnote 6** - This contradicts the statement on Page 68, 2nd Paragraph, 4th Line.

63. **Page 72, Table 4-3, and Appendix J, Oral Slope Factors for DDD and DDE** - The values shown are incorrect; the actual values are 2.4 E-1 and 3.4 E-1, respectively (HEAST, FY 1991).

64. **Page 72, Table 4-3** - This table does not include all of the compounds and slope factors in Appendix J.

65. **Page 82, 4th Paragraph** - Delete the "D" from "ED."

66. **Page 87, 1st Paragraph, 1st Line** - Add "in" at the end of the first line.

67. **Page 90, 1st Paragraph, 7th Line** - Add "10^{-2}, except for" between "less than" and "cadmium."

68. **Page 93, 1st through 4th Paragraphs** - The risk numbers listed here do not coincide with the numbers in the Executive Summary, page ES-1 (e.g., the lower range of the cancer risk and hazard index for future residential receptors using contaminated on-site ground water are different: 4×10^{-8} vs. 2×10^{-6} and 1.7 vs. 1.2). A table that shows how these numbers were calculated should be included in Section 5.0 of the text.

69. **Page 113, 4th Paragraph, 5th Line** - Is there an Appendix L to the Risk Assessment?

70. **Page 114, 2nd and Last Paragraph** - The reference "WDOE, 1991" should be "Ecology, 1991."

71. **Page 114, 5th Paragraph** - The relevance of Wisconsin's criteria for fresh water sediments at the Lenz Oil site is not explained.

72. **Page 115, 3rd Paragraph, 1st Line** - Table K-3 does not list Aroclor-1242 and Aroclor-1260.

73. **Page 115, 5th Paragraph, 1st Line** - Copper is not in Appendix K.

74. **Page 116, 2nd Paragraph, 1st Line** - The meaning of this sentence is not clear. It should be modified to read "The pathway and aquatic receptors that may be exposed to site chemicals are:", if that is the meaning of the sentence.

75. **Page 119, 3rd Paragraph, 2nd Line** - The reference should be "Ecology, 1991."

76. **Page 119, 3rd Paragraph, 5th Line** - Replace "Heavy metals" with "Zinc." After revising Table K-1 to have the correct numbers and units, only the zinc concentrations exceed the water quality criteria by a "large margin."

77. **Page 120, 1st Paragraph, 4th and 5th Lines** - Chlordane, PCB-1242, and PCB-1260 are not listed in Table K-3 of Appendix K. In addition, this statement conflicts with the following statement on Pages 35 and 36: "These contaminants [PCBs] were detected in on site ground water, but not in deeper on site or off site wells. This indicates that these compounds may be sorbed to sediments in the shallow ground water and that they have not migrated beyond on site ground water. Therefore, the risk of exposure to these contaminants from ground water discharge to surface water was not evaluated in this report." The statement made on Page 120 should at least be similarly qualified. The reference made on Page 122, 6th paragraph, under Section 6.5.2, does not adequately address this point.

78. **Page 121, 1st Paragraph, 5th Line** - Ethyl benzene, chlordane, PCB-1242, and PCB-1260 are not listed in Table K-3.

79. **Sections 6.4 and 6.5** - These sections should be rewritten to indicate that: (1) none of the chemicals that exceeded the specified criteria are chemicals of concern (i.e., are not significantly different from background concentrations); and (2) the chemicals of concern in ground water have not and are not expected to migrate off site.

80. **Page 122, 4th Paragraph, 3rd and 4th Sentences** - These sentences should be deleted, as partitioning coefficients were neither used nor mentioned in Section 6.0.

81. **Page 123, 1st Paragraph, 3rd Line** - Delete the reference to the soil gas data because these data were not used in the Risk Assessment.

82. **Page 123, 2nd Paragraph, 2nd Sentence** - The sentence should be modified to read "Some or all of these contaminant groups are... ." Not all of the contaminant groups were found in all media (e.g., PCBs).

83. **Page 123, 3rd Paragraph, 2nd Line** - Appendix C does not list xylene as being detected in the drainage ditch surface waters.

84. **Page 123, 4th Paragraph, 3rd Sentence** - The presence of PAH compounds on the Lenz Oil side of the ditch may be related to spills or leaks in that area, rather than to the migration of on-site contaminants. Migration of on-site soil contaminants within the shallow soil is unlikely. The sentence

should be modified to read: ".. indicates that spills or leaking may have occurred in this area."

85. **Page 123, 5th Paragraph, 1st Line** - Delete the second "only."

86. **Page 124, 1st Paragraph, Last Sentence** - The presence of these chemicals may be related to spills or leaks in that area, rather than to the migration of on-site contaminants.

87. **Page 124, 4th Paragraph, 4th Line** - Add "do" between "date" and "not."

88. **Page 124, 4th Paragraph, Last Sentence, and 5th Paragraph, 1st Sentence** - These sentences contradict each other. If the ground water contaminant plume has not affected the river, why was exposure to contaminants in the river evaluated?

89. **Page 124, 6th Paragraph, 3rd Line** - Add a reference to Section 5.4.2.

90. **Page 125, 3rd Paragraph, 2nd and 3rd Sentences** - The sentence regarding the risk from hexavalent chromium in the ground water should be deleted, because hexavalent chromium was correctly neither evaluated nor presented in Sections 4.0 or 5.0.

91. **Pages 125 and 126, Section 7.4** - Either this section or Section 5.0 needs a table that includes the chemicals of concern for each pathway. Also, Section 7.4 does not specify what the range of numbers represent (i.e., children vs. adults, on-site vs. off-site data, shallow vs. deep ground water), and is, therefore, difficult to follow and understand. The next comments regarding Page 125 are based on the 31 tables with all of the risk calculations included in Appendix J.

92. **Page 125, 4th Paragraph** - The following issues should be addressed: (1) the number 4×10^{-8} as a total carcinogenic risk is not included in Section 5.0, (2) two numbers should be given for the hazard index, (3) the chemical vinyl chloride is of concern only for the off-site ground water, and (4) the hazard indices from the exposure of a future resident to off-site ground water shown in Appendix J are higher than the range shown.

93. **Page 125, 4th Paragraph** - The following issues should be addressed: (1) PCBs and Aroclor isomers are the same compounds, (2) the rest of the PAHs are not "equivalent" to benzo(a)pyrene, and (3) the risk to trespassers from dermal contact to soils in the nonexcavated area (B) are in the 10^{-8} range, which is less than levels accepted by USEPA.

94. **Page 126, Section 7.5** - This section should refer to the fact that none of the chemicals detected in the ditch sediments were significantly different from background concentrations.

95. **Page 122, References** - All references to Technical Memoranda No. 3A should be deleted. The Remedial Investigation Report may be referenced in its place.

96. **Appendix B, Page B-1, 3rd Paragraph, 1st Line** - Delete the word "each." A mean standard deviation and population size were only available for the soil medium.

97. **Appendix C, All Tables** - No information is given either in the Appendix or in Section 2.4.3 regarding:

- The specific samples used to evaluate each of the four point source areas.

- Whether the background and duplicate sample data were included in the statistical evaluations.

- How the detection frequencies were "adjusted."

- Why some of the arithmetic means are higher than the maximum detected concentrations. This is probably because the detection limits that were used were higher than the maximum detected concentrations and this is inconsistent with EPA, 1989b.

- How the confidence interval is calculated. The equation $x + t.s$ does not result in the numbers shown in the first table. The numbers calculated with this equation are higher than the values listed.

It appears that the VOC results from both rounds of ground water samples were used for the statistical evaluation of the contaminants in Area A (upper and lower units), but not for Area B (upper and lower units). This inconsistency should be explained. Further, Section 2.4.1 suggests that only the Phase II ground water sample results were used for the RA analysis. All acceptable data for both Phase I and Phase II should be used for this analysis.

Also, the following column headings should be modified:

- "Maximum Mean" should be "Maximum Detected."

- "Confidence Interval" should be "95% Upperbound Confidence Limit."

The values shown under the heading "Confidence Interval" are not the RMEs. For example, in the first table (i.e., Ground Water Organics, Area A - Upper Unit), the value in the last column for di-n-butyl phthalate would be 1.0 if the last column showed the RME.

98. **Appendix D** - The following issues should be addressed: (1) the minimum river flow occurred on August 5 and 6, 1992, not on July 6; (2) the average horizontal ground water velocity and effective porosity values for the unconsolidated soil portion of the aquifer were revised in the RI Report and the new values (i.e., 9.9 feet/day and 36.8 percent, respectively) should be used to calculate the dilution factor.

99. **Appendix E, Page E-1, 3rd Paragraph, 2nd Sentence** - This sentence should be modified to indicate that 0- to 2.5- and 0- to 5-foot deep samples were used, instead of "Data for surface soils."

100. **Appendix F** - Tables showing the calculations of the air concentrations are not provided. It is not possible to know which of the equations was used to calculate the soil gas concentration for each compound or what parameter values (i.e., vapor pressure and diffusion coefficient) were used for each chemical. Furthermore, the document states that values of these parameters for some compounds were estimated using "conservative estimates" and, therefore, it is necessary to list all of the values and their sources. Also, the soil concentrations used in the calculations should be

presented, because Page 92 indicates that both "surface" and "subsurface" soil data were used for the residential scenario, but Appendix C does not contain any such table.

101. **Appendix G, Page G-1, Definition of the Henry's Law Constant (H)** - This value should be expressed in atm - m^3/mol.

102. **Appendix G** - Tables showing the calculations and the values of the Henry's Law Constants used should be presented.

103. **Appendix I** - A permeability constant (PC) value for benzene is not provided, but is used in the calculation of risks in Table J-18.

104. **Appendix J, Tables J-5, J-6, J-8, J-9, J-15, J-16, J-29, and J-30** - The slope factors for DDE and DDD are wrong. See comment on Page 72, Table 4-3.

The following comments are based on checking two to five of the numbers in the indicated tables. The calculations checked in Table J-9 were correct. The calculations in the tables indicated below could not be reproduced; therefore, the tables should be reviewed and revised. The tables that are not discussed below were not reviewed; however, those tables may also require revisions.

105. **Appendix J, Table J-1** - This table should be revised. The values of the "Intake - CAR" and the "Intake - NC" calculated by using Equations 3-18 and 3-19, respectively, are different from the values listed in this Table.

106. **Appendix J, Table J-3** - This table should be revised. The calculation of "Intake - CAR" uses a value of ED of 21 years for adults instead of the value of 30 years presented on Page 52. In addition, the calculation of "Intake - CAR" uses a value of PC of 8.4×10^{-4} instead of the value listed in Appendix I (i.e., 1×10^{-3}).

107. **Appendix J, Table J-7** - This table should be revised. The calculation of "Intake - CAR" uses an inhalation rate (IR) value of 3 m^3/hr (i.e., the value for workers) instead of the 0.83 m^3/hr IR for trespassers indicated on Page 47.

108. **Appendix J, Tables J-7 and J-10** - These tables should be revised. The correct determination of the air concentrations cannot be evaluated without: (1) knowing the actual soil concentrations, vapor pressures, and diffusion coefficients used in the Risk Assessment; and (2) running the SCREEN model. However, the emission rate values for benzo(b)fluoranthene and benzo(a)pyrene obtained by using the values indicated below are approximately 4 and 6 orders of magnitude lower, respectively, than the emission rate for 1,2-dichloroethane. This same difference should be seen in the air concentrations, because the model does not account for reactions after the emissions occur. However, the air concentrations shown in Table J-10 for benzo(b)fluoranthene and benzo(a)pyrene are 2 orders of magnitude higher and one order of magnitude lower, respectively, than the air concentration of 1,2-dichloroethane, in contrast with the aforementioned emission rate ratios. The values used in the emission rate calculations include: (1) the maximum concentration detected in the Area B surface or boring samples, (2) the vapor pressures listed in the "Public Health Evaluation Manual," (U.S. EPA, 1986), and (3) diffusion coefficients in the order of 10^{-2} cm^2/s.

109. **Appendix J, Table J-17** - This table should be revised. The values of the "Intake - NC" and "Intake -CAR" calculated by using Equations 3-11 and 3-10, respectively, are different from the values listed in this table.

110. **Appendix J, Table J-18** - This table should be revised. The slope factor for benzene was not used in the calculations (see Table J-17).

111. **Appendix J, Table J-19** - This table should be revised. The air concentration values calculated for 1,1-dichloroethene and di-n-butyl phthalate by using the Appendix G equations, are lower than the values listed in the table by 6 and 9 orders of magnitude, respectively.

112. **Appendix J, Table J-26** - This table should be revised. The slope factor shown for zinc is, in fact, the reference dose (there is no slope factor for zinc). In addition, the reference dose used for chromium is the value for hexavalent chromium, while it is stated on Pages 73 and 74 that the value for trivalent chromium was to be used.

113. **Appendix J, Table J-29** - This table should be revised. Chronic reference dose values were used instead of subchronic reference dose values for tetrachloroethene, gamma-BHC, and cadmium (se Table 4-1).

114. **Appendix K, Table K-1** - The values listed for the "Drinking Water Criteria" should be multiplied by 1,000 to convert these values to ug/L.

115. **Appendix K, Table K-3** - The Water and Fish Ingestion Quality Criteria (WFIQC) and Fish Consumption Criteria (FCC) values listed for ethyl benzene, 1,1,1-trichloroethane, benzene/hexadecone, toluene, and diethylphthalate should be modified as follows:

- Ethyl benzene: WFIQC = 1,400 ug/L and FC = 3,280 ug/L.
- 1,1,1-Trichloroethane: WFIQC = 18,400 ug/L and FC = 1,030,000 ug/L.
- Benzene/Hexadecone: WFIQC = 0.66 ug/L.
- Toluene: WFIQC = 14,300 ug/L and FC = 424,000 ug/L.
- Diethylphthalate: WFIQC = 360,000 ug/L and FC = 1,800,000 ug/L.

In addition, the values shown in this table as Fresh Water Acute Quality Criteria (FWAQC) and Fresh Water Chronic Quality Criteria (FWCQC) are not quality criteria, but the Lowest Reported Effects Concentrations.